

REMARKS

With the entry of this Amendment, claims 1, 2, 4-16 and 18-22 will be pending in this patent application.

ALLOWABLE SUBJECT MATTER

Applicant is most appreciative of the Examiner's recognition of allowable subject matter in claims 6-10, 12-15 17 and 20. As noted below, Applicant has rewritten claim 6, 9, 13, 14, 17 and 20 in independent form as amended claims 6, 9, 13, 14, 16 and 20. Applicant therefore trusts that the Examiner will find these claims to be allowable, along with dependent claims 15 18 and 19. Also, for reasons presented below, Applicant submits that the other claims now pending in the application are allowable.

AMENDMENTS TO CLAIMS

In this paper, Applicant has:

- Amended claim 1 to incorporate limitations that had been recited in claim 3 as filed;
- Canceled claim 3;
- Amended claim 5 to incorporate a limitation recited in claim 6 as filed;
- Rewritten claim 6 in independent form incorporating limitations recited in claim 5 as filed;
- Rewritten claim 9 in independent form incorporating limitations recited in claim 5 as filed;
- Rewritten claim 13 in independent form incorporating limitations recited in claim 1 as filed;
- Rewritten claim 14 in independent form incorporating limitations recited in claim 1 as filed;
- Rewritten claim 16 in independent form incorporating limitations recited in claim 1 and claim 17 as filed;
- Canceled claim 17;

- Amended claim 18 to depend from claim 13;
- Amended claim 19 to depend from claim 18; and
- Rewritten claim 20 in independent form incorporating limitations recited in claim 1 as filed1.

Applicant has also made editorial amendments to the claims for enhanced clarity and conformance with accepted U.S. patent practice.

PRIOR ART REJECTION I

Claims 1-5, 11, 16, 18 and 19 were rejected under 35 USC § 103(a) as being unpatentable over US 2004/0105473 A1 (Tojo et al.) in view of US 2004/0213315 A1 (Kume et al.) and US 2002/0053676 A1 (Kozaki).

As noted above, Applicant has rewritten claim 16 in independent form that also incorporates allowable subject matter that had been recited in claim 17. Also, claims 18 and 19 now depend from allowable claim 13. Applicant therefore traverses this rejection insofar as it might be deemed applicable to any of claims 1, 2, 4, 5 and 11 as now presented.

Without acquiescing in the rejection, Applicant has amended claim 1 to recite limitations from claim 3 as filed, namely, the low reflectivity of the end surface protective films for the wavelength of the emitted light from the active layer. Claim 5 has also been amended to recite this property of an end surface protective film.

Claim 1 now defines “the end surface protective films” having *both a higher* reflectivity for the wavelength of the luminescent radiation from the luminescent radiation region, and a *lower* reflectivity for the wavelength of the emitted light from the active layer, whereby leakage of light from the waveguide region (stray radiation) is reduced, so that the far-field pattern is not disturbed with noise caused by stray light. The claimed laser device achieves excellent beam characteristics, while the output light is not blocked and can be effectively retrieved or outputted from the laser device.

Tojo et al. discloses a semiconductor laser with a sapphire substrate and GaN-based semiconductor layers deposited on the substrate. That is, the applicability of Tojo et al. is limited to a semiconductor structure having a different refractive index from that of the substrate. By contrast, the device disclosed and claimed in this application present application employs a

nitride semiconductor layer on or above a *nitride* semiconductor substrate. Applicant submits that the Tojo et al. disclosure is not relevant to such configuration.

The examiner characterizes Kume et al. as disclosing "absorbing layer (15A) that absorbs light emitted from the active layer (17) (Figure 1, [0067])." However, Kume et al. relates to laser device having spontaneous emission absorbing layer to prevent "LED light," the wavelength of which is substantially the same as that of laser light. In contrast, Applicant's disclosed and claimed invention employs end surface protective films having a higher reflectivity for the wavelength of the luminescent radiation, i.e., with a wavelength *longer than* the wavelength of the emitted light. Also, although the absorbing layer (15A) of Kume et al. may emit a small amount of light, such amount is far smaller than that of excitation light at the substrate. And, the absorbing layer (15A) disclosed in Kume et al. is a supersaturated absorbing layer such as InGaN layer, provided as a part of semiconductor layer. On the contrary, Applicant's disclosed and claimed employs a "nitride semiconductor substrate" having a luminescent radiation region that absorbs light emitted from the active layer and emits luminescent radiation with a wavelength longer than the wavelength of the emitted light. In addition, the absorbing layer (15A) disclosed in Kume et al requires an opening to output laser light, as shown in Fig. 11b, which is not necessary for the Applicant's invention.

The Examiner cites Kozaki for its disclosure of a GaN substrate (101) (Figure 1, [0142]), and concludes that it would have been obvious to modify the device of Tojo et al. by growing the laser device on a GaN substrate.

Without acquiescing in the Examiner's proposal to modify the Tojo et al. device in view of the teachings in Kume et al. and Kozaki, Applicant observes that none of the cited reference disclose nor suggest the claimed structure of "the end surface protective films" having both a higher reflectivity and lower reflectivity for the wavelength. Applicant contends, therefore, that, even if the teachings were combined as proposed by the Examiner the resulting device could not meet the clear requirements of Applicant's claims.

In view of the foregoing observations, Applicant submits that no reasonable combination of the disclosures in Tojo et al., Kume et al. and Kozaki can properly serve as a basis for

rejecting Applicant's amended claims 1 and 5, or any of the claims that depend from them, under 35 USC § 103(a).

PRIOR ART REJECTION II

Claims 21 and 22 were rejected under 35 USC § 103(a) as being unpatentable over Tojo et al. in view of Kume et al. and US 2002/0141321 A1 (Wada et al.). Applicant traverses this rejection insofar as it might be deemed applicable to either of claims 21 and 22 as now presented.

The Examiner cites Wada et al. for its disclosure of a GaN laser device optically coupled to a photodetector.

Without acquiescing in the Examiner's proposal to modify the (proposed) Tojo et al.-Kume et al.-Kozaki device in view of the Wada et al. teachings, Applicant observes that Wada et al. offers no disclosure that can remedy deficiencies in the Tojo et al., Kume et al. and Kozaki disclosures vis-à-vis the clear requirements of Applicant's amended parent claims 1 and 5, as pointed out above.

In view of the foregoing observations, Applicant submits that no reasonable combination of the disclosures in Tojo et al., Kume et al., Kozaki and Wada et al. can properly serve as a basis for rejecting either of Applicant's claims 21 and 22, as now presented, under 35 USC § 103(a).

CONCLUSION

In view of the amendments, observations and arguments presented herein, Applicant respectfully requests that the Examiner reconsider and withdraw the rejections stated in the outstanding Office Action and recognize all of the pending claims as allowable.

If unresolved matters remain in this application, the Examiner is invited to contact Frederick R. Handren, Reg. No. 32,874, at the telephone number provided below, so that these matters can be addressed and resolved expeditiously.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

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